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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/876,018	06/08/2001	Dennis Robert Simons	209697US6	7461

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EXAMINER
PRITCHETT, JOSHUA L

ART UNIT	PAPER NUMBER
2872	

DATE MAILED: 07/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/876,018	Applicant(s) SIMONS ET AL.	
	Examiner Joshua L Pritchett	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 May 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 June 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

This Action is in response to Response filed by applicant on May 5, 2003 (Paper No. 9).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Campion (US 6,201,917) in view of Unger (US 4,691,991) and Aikawa (US 5,995,695).

Regarding claims 1, 2, 8 and 9, Campion discloses a single mode optical fiber comprising a light-conductive core portion (20), an internal cladding portion (22) surrounding this core portion and a jacketing portion (25). Campion lacks reference to the claimed refractive index relationship. Campion further lacks reference to doping with fluorine. Unger discloses that the refractive index of the core portion is larger than the refractive index of the cladding portion and jacketing portion (Table between cols. 5-6; col. 6 lines 42-45). Unger states in col. 6 lines 42-47, "In the Table, the "index diff. %" columns indicate the percentages by which the index of refraction differs from the index of refraction of the outer layer (jacket) of pure fused silica; a positive percentage indicates that the index of refraction is greater than that of pure fused silica

while a negative percentage indicates that the index of refraction is less." Based on the values of Design No. 1 of the Table in Unger and the known refractive index of fused silica, 1.45, the core refractive index is 0.3% larger than the refractive index of the jacket (core refractive index therefore equals 1.455), and is therefore greater than the 1.45 refractive index of the jacket. The refractive index of the cladding is 0.4% lower than the refractive index of the jacket (cladding refractive index therefore equals 1.444) based on Design No. 1 in the Table in Unger and the known refractive index of fused silica. The refractive index of the cladding (1.444) is therefore less than the refractive index of the core (1.455). Unger further teaches the refractive indices of the cladding and the jacket being practically equal (Table). The refractive index of the cladding (1.444) and the refractive index of the jacket (1.45) have a difference of 0.4%, therefore in the broadest reasonable interpretation of one ordinarily skilled in the art of the phrase "practically equal" the reference meets the claim limitation. Aikawa teaches the doping of silica glass with 0.4 % by weight fluorine (col. 9 lines 35-36). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to create the Campion invention with the refractive index relationship taught by Unger for the purpose of creating a higher level of reflectivity between the core material and the cladding and jacket layers. It would further have been obvious to dope the cladding layer with fluorine for the purpose of lower the refractive index of the material to create more reflectivity between the cladding and the core material.

Regarding claims 3 and 10, Campion discloses a buffer layer (26) between a jacketing portion (25) and the internal cladding (22). Campion lacks the claimed refractive index relationship. Unger teaches the claimed relationship between the refractive indices of the core material and the surrounding layers of material (Table). Unger shows in the Table that the

refractive index of the core is 0.3% greater than the jacket and that the buffer layer refractive index is 0.075% greater than the jacket, therefore the buffer layer has a refractive index lower than the core and practically equal to the inner cladding and the jacket. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to create the Campion invention with the refractive index relationship taught by Unger for the purpose of creating a higher level of reflectivity between the core material and the surrounding layers.

Regarding claims 4 and 11, Campion discloses an intermediate layer (21) between a core (20) and the internal cladding (22). Campion lacks the claimed refractive index relationship. Unger teaches the claimed relationship between the refractive indices of the core material and the surrounding layers of material (Table). Unger shows in the Table that the refractive index of the core is 0.3% greater than the jacket and that the intermediate layer refractive index is 0.075% greater than the jacket, therefore the intermediate layer has a refractive index lower than the core and practically equal to the inner cladding and the jacket. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to create the Campion invention with the refractive index relationship taught by Unger for the purpose of creating a higher level of reflectivity between the core material and the surrounding layers.

Regarding claims 5 and 12, Campion teaches the invention as claimed but lacks reference to an external cladding layer outside the jacketing layer. Unger teaches the use of an external cladding layer (18) surrounding the jacketing layer (16), which is next to the internal cladding layer (14). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to create the Campion in combination with Unger and Aikawa invention with the external cladding layer taught by Unger for the purpose of creating a higher level of

reflectivity between the core material and the surrounding layers and eliminating longer wavelength transmissions down the fiber.

Regarding claim 6, Campion teaches the diameter of the core material to be 50 μm and the diameter of the core material plus the internal cladding to be 90 μm. Therefore the thickness of the cladding layer in the Campion reference is 20 μm.

Regarding claim 7, Campion teaches the process of creating an optical fiber by building up (col. 4 lines 65-67). Campion lacks reference to doping the material with fluorine. Aikawa teaches the use of doping silica with 0.4 % by weight fluorine. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the creation process taught by Campion with the doping material taught by Aikawa for the purpose of manipulating the refractive index.

Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Campion in view of Unger and Aikawa as applied to claim 8 above, and further in view of Bachman (US 4,468,413).

Campion in combination with Unger and Aikawa teaches the invention as claimed but lack reference to the use PCVD and plasma induction. Bachman teaches the use of PCVD to form the layers of the optical fiber (col. 1 line 67 – col. 2 line 7). Bachman further teaches the use of plasma activation in the doping of the optical fiber (col. 1 lines 48-57). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to create the layers of the Campion in combination with Unger and Aikawa invention using PCVD as

taught by Bachman for the purpose of efficiently creating the and doping an optical fiber at low pressure.

Response to Arguments

Applicant's arguments, see Response (Paper No. 10), filed May 5, 2003, with respect to the rejection(s)of claim(s) 1-4 and 6-11 under Campion in view of Ishikawa and Aikawa have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Campion in view of Unger and Aikawa.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua L Pritchett whose telephone number is 703-305-7917. The examiner can normally be reached on Monday - Friday 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 703-305-0024. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JLP
July 3, 2003